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ABSTRACT

The measurement of self concept and motivation of children ages 3 to 6 with an interview instrument is not an easy task. It has been accomplished with middle income, suburban children before. However, this same interview did not work well with low income, urban preschoolers. This study presents the preliminary psychometric work on a new interview instrument to measure self concept and motivation in preschool children, Children's Self-Concept and Motivation Assessment. This instrument is based on Motivational Systems Theory, which takes an integrative, comprehensive approach. It is adapted from the Assessment of Academic Self-Concept and Motivation, an instrument for adolescents. The initial psychometric work on the Children's Self-Concept and Motivation Assessment is very promising. (Author)

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Children's Self-Concept and Motivation Assessment: Initial Reliability and Validity

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Abstract

The measurement of self-concept and motivation of children aged 3 to 6 years with an interview instrument is not an easy task. It has been accomplished with middle income, suburban children before. However, this same interview did not work well with low-income, urban preschoolers. This study presents the preliminary psychometric work on a new interview instrument to measure self-concept and motivation in preschool children, Children's Self-Concept and Motivation Assessment. This instrument is based on Motivational Systems Theory, which takes an integrative, comprehensive approach. It is adapted from the Assessment of Academic Self-Concept and Motivation, an instrument for adolescents. The initial psychometric work on the Children's Self-Concept and Motivation Assessment is very promising.

Children aged 3 to 6 years have thoughts about themselves or self-referent beliefs. They may think of themselves as good or bad at academics (Stipek, Feiler, Daniels, and Milburn, 1995), able to master their environment or not (Smiley and Dweck, 1994), or competent or not (Harter and Pike, 1984). They may believe themselves to be more competent in one area than another (Harter and Pike, 1984). And just like older children and adults they are more motivated by tasks in areas where they perceive themselves to be more competent (Harter & Pike 1984 and Smiley & Dweck, 1994).

Measurement of children's self-referent beliefs (self-concept) and motivation has taken many forms. Some researchers have measured self-referent beliefs or self-concept with an interview. However, this proved not to work well with low income, urban preschoolers (Fantuzzo, McDermott, Manz, Hampton, and Burdick, 1997). Motivation has mostly been measured in children aged 3 to 6 years in experimentally controlled situations (Smiley & Dweck, 1994). However, the authors believe that it is possible to measure both self-concept and motivation in children aged 3 to 6 years from urban and rural environments in one interview.

Statement of the Problem

Measurement of self-concept and motivation is problematic when working with young children aged 3 to 6 years for two reasons. One reason is the fact that motivational theories are evolving. Another reason is because even though children have thoughts about themselves, children's notions of self are limited as a result of limitations in their cognitive development during this period (Case, 1985). The present proposal seeks to address these problems by utilizing a comprehensive and integrative theory of motivation and embedding

measurement in concrete situations for the creation of Children's Self-Concept and Motivation Assessment (CSCMA).

Prior Interview Instruments

The main instrument for measuring self-concept in young children assesses perceived competence and social acceptance and was developed by Harter and Pike (1984). Harter and Pike's (1984) instrument is an interview for 4 to 7 year-olds that asks questions about pictures. Physical and cognitive competence combine to make one scale, while peer and maternal acceptance combine to make another scale. This instrument was developed with middle-class mostly European American subjects. Later use of this instrument showed that it did not work well with low-ses, urban subjects (Fantuzzo, Mc Dermott, Manz, Hampton, and Burdick, 1997).

Current Instrumentation

Ford's Motivational Systems Theory (MST) is the basis for the CSCMA. MST espouses the belief that motivation consists of the patterning of goals, emotions, and personal agency beliefs. Personal agency beliefs are beliefs about ability and beliefs about environmental support. The CSCMA measures personal agency beliefs and other self-referent beliefs; therefore, it is titled a measure of self-concept and motivation undergirded by MST (Ford, 2000). MST states that personal agency beliefs are an integral part of motivation (Ford, 1992). It is through personal agency beliefs that motivational patterns are created. Personal agency beliefs may be strong or medium or weak. This combination of beliefs about ability and beliefs about environmental support form to create motivational patterns. Bandura (1990) proposes a similar connection between self-efficacy (self-referent beliefs) and

motivation. Simply put, Bandura (1990) believes that stronger self-efficacy beliefs lead to stronger motivational orientations. Personal agency beliefs and self-efficacy beliefs are all self-referent beliefs or, in other words, a part of children's self-concept.

The CSCMA is also innovative in that it seeks to embed interview questions in concrete situations. The children are asked questions about four dimensions of learning activities while they are participating freely in the activity areas. A child may also be directed to an activity for purposes of demonstration if he or she is not familiar with the item or if they do not freely approach an item.

Participants

The participants in this project are 117 preschool children. Fifty are males, 65 are females, and for 2 children the parents did not report gender. One of the children was actually almost 3-years-old. Twelve of the children were 3-years-old; 3 were 3.5-years-old; 24 were 4-years-old; 10 were 5-years-old; and 67 did not have age reported. All of the children were in preschool, though. Fifty-two of the children came from a rural area and 65 came from an urban area. Fifty-three were European American; six were African American; 3 were Hispanic; one reported mixed or other ethnic heritage; and 54 of the parents did not report ethnicity.

Procedure

Participants were solicited from five child care programs. They were interviewed with the CSCMA in a playroom by themselves about five learning activity dimensions while being allowed to play freely in that area. As they approached a learning activity, they were questioned about it. Participants may have been directed to learning activities for purposes of demonstration if they did not freely approach the activity or to familiarize them with the

activity. The five learning activity areas were cognitive, social, language, motor, and creative.

The subscales and five scales of the CSCMA were submitted to internal consistency reliability procedures using Cronbach's alpha. Each of the five scales had five subscales. A principal components factor analysis with varimax rotation was performed on the items.

Results

A preliminary form of the instrument was created that would be refined into the final version. The creative, social, and language scales all contained five subscales of five items each. The preliminary version of the instrument included 10 cognitive items with five subscales, while the motor scale had 11 items with five subscales. The motor scales were removed from the final instrument due to poor internal consistency estimates and poor correlational relationships with the other scales of the instrument. Additionally, the cognitive items were reduced from 10 to 5. The items with stronger relationships with the other scales and with stronger internal consistency estimates were retained for final analysis. It was determined that the items that were removed from the instrument had poor psychometrics partly due to the age of the participants and the tasks that were involved. The tasks were at times either too easy or too difficult for the children to complete and therefore deemed inconsistent with the remaining tasks on the final version of the instrument.

Internal consistency reliability was estimated using Cronbach's coefficient alpha and are shown in Table 1. The cognitive subscales had internal consistency relaibilty estimates of .91 to.98, while the total cognitive scale score's estimate was .97. The social subscale scores had internal consistency reliability estimates of .78 to .89, while the total social scale's estimate was .95. For the language subscales the estimates ranged from .92 to .99 and the

language total scale estimate was .96. The creative subscales had a range of .62 to .86 in reliability estimates, with four of the five subscales ranging from .81 to.86. The reliability estimate for the total creative scale was .92.

A principal components factor analyisis with varimax rotation was performed on 100 selected items. Because of the limited number of subjects in comparison to the number of items included in the analysis, this factor analysis was done for descriptive purposes only. The results of this factor analysis are found in Table 2 highlighting the structure coefficients that were greater than .50.

Three factors were extracted accounting for 50% of the total variance. Factor 1 of the solution (eigenvalue=34.61 included items from the social and creative scales. Factor 1 also included questions from the language scale that related to speaking words. Facotr 2 included all items from the cognitive scales as well as the items from the language scale related to speaking sentences. Factor 2 had an eigenvalue of 8.25. Factor 3 had an eigenvalue of 7.18. It consisted of the remaining items from the language scale.

Conclusion

The initial reliabilities and factorial validity are promising. The fact that the social and creative items were on the same factor is interesting. This may be because there is an element of social interaction when a preschool child completes activities such as dramatic play and making music. The split in the language items suggests the influence of social interaction and cognition in language activities. More subjects being interviewed in the future may yield even more promising results. For instance, the social and creative items may load on separate factors.

It seems that self-concept (self-referent beliefs) and motivation can be measured in children aged 3 to 6 years. The theory utilized in this proposal and the method of interviewing created results that demonstrated initial reliability and validity. It is also significant that the participants for this proposal came from rural and urban environments.

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Table 1

Cronbach Alpha Internal Consistency Reliability Estimates

Scale	Subscale	Reliability
Cognitive Total		.97
	Cognitive 2	.95
	Cognitive 3	.98
	Cognitive 4	.91
	Cognitive 5	.97
	Cognitive 6	.97
Language Total		.96
	Language 1	.92
	Language 2	.98
	Language 3	.96
	Language 4	.97
	Language 5	.99
Social Total		.95
	Social 1	.78
	Social 2	.79
	Social 3	.89
	Social 4	.90
	Social 5	.89
Creative Total		.92

	Creative 1	.82
	Creative 2	.84
	Creative 3	.86
	Creative 4	.62
	Creative 5	.85

Table 2

Rotated Structure Coefficients for the Exploratory Factor Analysis

Item	Factor 1	Factor 2	Factor 3
cog2 abil	0.149	0.688	0.130
cog2 adul	0.112	0.763	0.149
cog2 cont	0.198	0.713	0.168
cog2 impr	0.177	0.772	0.044
cog2 like	0.122	0.738	0.103
cog3 abil	0.157	0.740	0.140
cog3 adul	0.158	0.752	0.148
cog3 cont	0.237	0.708	0.182
cog3 impr	0.227	0.743	0.181
cog3 like	0.208	0.752	0.149

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cog4 abil	0.407	0.581	-0.148
cog4 adul	0.397	0.625	-0.033
cog4 cont	0.504	0.560	-0.064
cog4 impr	0.413	0.489	-0.050
cog4 like	0.435	0.421	-0.249
cog5 abil	0.066	0.723	0.153
cog5 adul	0.062	0.784	0.150
cog5 cont	0.213	0.826	0.136
cog5 impr	0.247	0.795	0.149
cog5 like	0.166	0.833	0.121
cog6 abil	0.263	0.750	0.200
cog6 adul	0.172	0.689	0.245
cog6 cont	0.263	0.743	0.239
cog6 impr	0.269	0.670	0.273

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cog6 like	0.153	0.696	0.266
lan1 abil	0.697	0.198	0.145
lan1 adul	0.592	0.270	0.188
lan1 cont	0.642	0.235	0.186
lan1i mpr	0.639	0.279	0.214
lan1li ke	0.618	0.064	0.209
lan2 abil	0.312	0.570	0.495
lan2 adul	0.263	0.608	0.479
lan2 cont	0.302	0.603	0.479
lan2i mpr	0.293	0.632	0.488
lan2li ke	0.217	0.562	0.549
lan3 abil	0.156	0.155	0.672
lan3 adul	0.093	0.219	0.620
lan3 cont	0.219	0.256	0.615

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lan3impr	0.258	0.395	0.515
lan3like	0.217	0.235	0.623
lan4abil	0.218	0.340	0.624
lan4adul	0.138	0.285	0.654
lan4cont	0.213	0.334	0.681
lan4impr	0.260	0.372	0.588
lan4like	0.157	0.311	0.667
lan5abil	0.070	-0.026	0.826
lan5adul	0.058	-0.033	0.845
lan5cont	0.028	-0.046	0.838
lan5impr	0.043	-0.011	0.813
lan5like	0.066	-0.019	0.838
soc1abil	0.444	0.074	0.121
soc1adul	0.415	0.288	0.180

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soc1 cont	0.641	0.119	0.201
soc1i mpr	0.549	0.321	0.045
soc1l ike	0.402	0.064	0.294
soc2 abil	0.645	0.026	0.058
soc2 adul	0.514	0.388	0.114
soc2 cont	0.562	0.220	-0.022
soc2i mpr	0.656	0.178	0.067
soc2l ike	0.418	0.180	0.198
soc3 abil	0.662	-0.057	0.056
soc3 adul	0.545	0.045	0.141
soc3 cont	0.594	0.030	0.228
soc3i mpr	0.663	0.159	0.069
soc3l ike	0.501	-0.001	0.255
soc4 abil	0.715	0.191	0.172

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soc4 adul	0.555	0.304	0.162
soc4 cont	0.759	0.259	0.141
soc4i mpr	0.628	0.365	0.074
soc4l ike	0.739	0.229	0.227
soc5 abil	0.627	0.261	0.155
soc5 adul	0.705	0.289	0.268
soc5 cont	0.601	0.344	0.111
soc5i mpr	0.631	0.389	0.089
soc5l ike	0.549	0.227	0.387
crt1a bil	0.739	0.014	0.100
crt1a dul	0.385	0.224	0.116
crt1c ont	0.652	0.318	0.040
crt1i mpr	0.670	0.180	0.003
crt1li ke	0.724	-0.015	0.087

crt2abil	0.467	0.366	-0.245
crt2adul	0.460	0.266	-0.169
crt2cont	0.543	0.522	-0.087
crt2impr	0.527	0.403	0.042
crt2like	0.545	0.194	-0.059
crt3abil	0.509	0.234	-0.138
crt3adul	0.287	0.386	-0.116
crt3cont	0.526	0.379	0.034
crt3impr	0.558	0.417	-0.007
crt3like	0.454	0.156	-0.053
crt4abil	0.408	0.123	0.035
crt4adul	0.433	0.378	0.029
crt4cont	0.353	0.076	0.167
crt4impr	0.646	0.253	0.080

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crt4like	0.432	0.078	0.185
crt5abil	0.575	0.144	0.202
crt5adul	0.360	0.367	0.207
crt5cont	0.585	0.140	0.201
crt5impr	0.562	0.274	0.269
crt5like	0.572	0.077	0.285
Eigenvalue	34.61	8.25	7.18
% Variance	34.61 %	8.25%	7.18%

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